AUTONOMIC NERVOUS SYSTEM

1. Acetylcholine*:*

a) Is synthesized by the enzyme acetylcholine esterase
b) Action in synapses is terminated by re-uptake of pre-synaptic neurons
c) Is released by some postganglionic sympathetic neurons
d) Is destroyed by monoamine oxidase
e) Reduces the heart rate by acting on nicotinic receptors in the SA node

2. Generalized sympathetic stimulation causes all the following *except:*

a) Increases the heart rate
b) Increases sweating
c) Relaxes bronchial smooth muscles
d) Tightens GIT sphincters
e) Constriction of pupil

3. The following actions of noradrenaline are mediated by stimulation of alpha-adrenergic receptors*:*

a) Constriction of cutaneous blood vessels
b) Increase of myocardial contractility
c) Dilation of arterioles to the viscera
d) Relaxation of urinary bladder
e) Dilation of systemic veins

4. Noreadrenaline is released by sympathetic nervous system at all the following *except*:

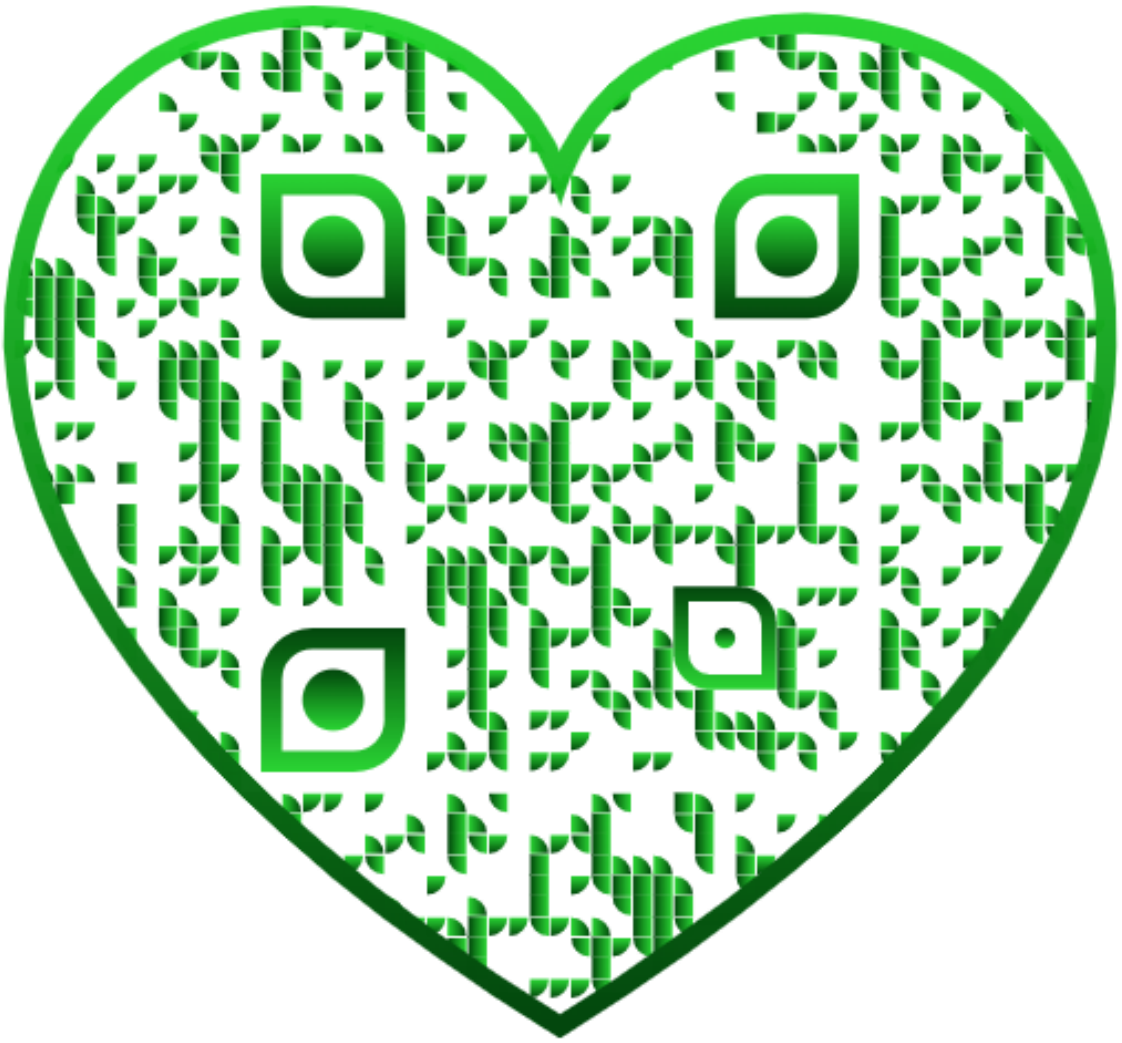
a) Cutaneous blood vessels
b) SA Node
c) Sweat glands
d) Cardiac muscles
e) Renal nerves

5. Nicotinic Receptors are blocked by:

a) Atropine
b) Curare
c) Suxmethonium
d) Propranlol
e) Acetylcholine esterase

6. Acetylcholine*:*

a) Is blocked by propanolol
b) Is blocked by curare in the autonomic ganglion
c) Is the neurotransmitter at all sites that are blocked by atropine
d) Is secreted by postganglionic sympathetic to the heart
e) Is degraded by the enzyme choline transferase



7. The sympathetic system*:*

a) Has short postganglionic neurons
b) Fibers are carried in the vagus nerve
c) Produces nicotine at its nerve endings
d) Has a thoraco-lumbar outflow from the spinal cord
e) Action is antagonized by atropine

8. The parasympathetic system*:*

a) Has short preganglionic fibers
b) Secretes dopamine
c) Controls most of the movements and secretions of the gut
d) Brings increase in heart rate during exercise
e) Action is blocked by Beta receptor blocker

9. The nicotinic cholinergic receptors are*:*

a) Not inhibited by high concentrations of nicotine
b) Inhibited by high concentrations of acetylcholine
c) Blocked by atropine
d) Ligand-gated chloride channels
e) Located in the cell nucleus

10. Cell bodies of preganglionic neurons of the sympathetic nervous system are found in*:*

a) The dorsal root ganglion
b) The sympathetic chain
c) Collateral ganglia
d) The dorsal horn cells of the spinal cord
e) The lateral horn cells of the spinal cord

11. Collateral ganglia of the sympathetic nervous system include the*:*

a) Adrenal medullary cells
b) Coeliac ganglion
c) Paravertebral ganglia
d) The basal ganglia
e) Nucleus of the tractus solitaries

12. The effects of parasympathetic stimulation include:

a) Ejaculation
b) Secretion of sweat
c) Contraction of the rectum
d) Constriction of gastrointestinal sphincters
e) Dilation of the bronchioles

13. Adrenal medullary cells are stimulated by:

a) Dopamine
b) GABA
c) Adrenaline
d) Acetylcholine
e) Nor-adrenaline

14. Dopamine is*:*

a) Found in all autonomic ganglia
b) An inhibitory transmitter
c) An acetylcholine derivative
d) Responsible for facilitating autonomic transmission
e) Released by the interneurons of the parasympathetic ganglia

15. The termination of acetylcholine action is mainly due to:

a) Reuptake by preganglionic neurons
b) Diffusion from synaptic cleft
c) Irreversible combination with cholinergic receptors
d) Uptake by postsynaptic cell
e) Cholinesterase in cholinergic synapses

16. Beta-1 adrenergic receptor stimulation causes:

a) Coronary vasodilation
b) Cardiac acceleration
c) Bronchodilation
d) Skin vasoconstriction
e) Constriction of anal sphincter

17. Sweating is served by which of the following receptors*?*

a) Nicotinic cholinergic receptors
b) Alpha- adrenergic receptors
c) Beta- adrenergic receptors
d) Muscarine cholinergic receptors
e) Dopaminergic receptors

18. Blocking of the nicotinic ganglionic receptors in the ANS supplying the heart leads to:

a) Inhibition of the sympathetic but not the parasympathetic
b) Inhibition of the parasympathetic but not the sympathetic
c) Inhibition of both sympathetic and parasympathetic
d) Decrease in the heart rate
e) Decrease in the force of contraction

19. Regarding the sympathetic nervous system:

a) Preganglionic fibers release noradrenalin
b) Postganglionic fibers release noradrenalin
c) It is stimulated by food intake
d) Release of acetylcholine by the pre-ganglionic fibers
e) Has longer pre-ganglionic fibers than post-ganglionic fibers

20. Stimulation of the parasympathetic nervous system leads to:

a) Constriction of pupils
b) Constriction of skin vessels
c) Constriction of gastrointestinal sphincters
d) Constriction of brain vessels
e) Increased blood flow in coronary vessels

21. Muscarinic cholinergic receptors are found*:*

a) On postganglionic sympathetic neurons
b) On postganglionic parasympathetic neurons
c) In the sweat glands
d) At the end-plate
e) None of the above

22. Preganglionic sympathetic neurons differ from preganglionic parasympathetic neurons in that:

a) They are shorter
b) They release acetylcholine
c) They emerge from the lateral horn of the spinal cord
d) They release noradrenaline
e) They are myelinated

23. The action of acetylcholine on its receptors is terminated mainly by:

a) Choline esterase
b) Reuptake into the terminal buttons
c) Diffusion to the blood
d) Pseudocholine esterase
e) Endocytosis by the target tissue that bears its receptors

24. Sympathetic stimulation is expected to lead to:

a) Constriction of the pupil
b) Dilation of the bronchioles
c) Inhibition of sweating
d) Venodilation
e) Copious salivary secretion

25. Atropine will block all the following *except*:

a) The action of the parasympathetic nervous system on the heart
b) The action of the sympathetic nervous system on the sweat glands
c) The action of the dilator sympathetic nervous system on the muscle blood vessels
d) The action of the parasympathetic nervous system on the gastric secretion
e) The action of acetylcholine on skeletal muscles

26. Transmitters of the autonomic nervous system include:

a) Acetylcholine at all postganglionic parasympathetic
b) Dopamine in sympathetic ganglia
c) Adrenaline in most sympathetic postganglionic neurons to the adrenal medulla
d) Adrenalin and nor-adrenalin in preganglionic neurons to the adrenal medulla
e) Dopamine in postganglionic sympathetic neurons

27. The sympathetic nerves supply:

a) The external sphincters of the gastrointestinal & urinary tracts
b) Smooth muscle of the constrictor pupillae
c) Smooth muscle of the bronchioles
d) Vasoconstrictor fibers to coronary vessels
e) Vasodilator fibers to skin vessels

28. Which of the following is a characteristic of postganglionic parasympathetic neurons that make them different from postganglionic sympathetic neurons:

a) They can be excited by dopamine
b) Postganglionic parasympathetic nerve bodies are located in ganglia close to the spinal cord
c) Most postganglionic parasympathetic nerves release the neurotransmitter acetylcholine
d) Some postganglionic parasympathetic nerves release the neurotransmitter norepinephrine
e) They are most active under conditions of stress, such as fight/flight

29. A selective beta adrenergic antagonist:

a) Binds to and activates adrenergic receptors
b) Does not inactivate all beta adrenergic receptors
c) Prevents the binding of all beta adrenergic antagonists
d) Is released from some postganglionic sympathetic nerve terminals
e) May be released from the adrenal medulla

30. A drug that increases the heart rate from 70 to 100 beats per minute could be a:

a) B1 adrenergic receptor agonist
b) Cholinergic receptor antagonist
c) Dopaminergic receptor agonist
d) B2 adrenergic agonist
e) Non-cholinergic, non-adrenergic agonist

31. Acetylcholine:

a) Is blocked by Propranolol
b) Is blocked by curare in the autonomic ganglion
c) Is the neurotransmitter at all sites that are blocked by atropine
d) Is secreted by postganglionic sympathetic to sweat glands
e) Is degraded by the enzyme COMT

32. Sympathetic stimulation results in:

a) Increased residual volume in the ventricles
b) More rapid peristaltic waves
c) Constriction of the internal anal sphincter
d) Dilation of external urinary sphincter
e) Contraction in bronchiolar smooth muscle

33. Muscarinic effects of acetylcholine can be inhibited by:

a) Nicotine
b) Muscarine
c) Cholinesterase inhibitors
d) Physostigmine
e) Atropine

34. Tachycardia due to sympathetic stimulation is mediated by:

a) B1 adrenergic receptors
b) B2 adrenergic receptors
c) Alpha adrenergic receptors
d) Both Alpha and Beta receptors
e) Nicotinic receptors